

CLAIMS

1. A data transfer control device for transferring data between a plurality of nodes connected to a bus, the data transfer control device comprising:

means which generates identification information for determining whether or not one received packet and the next received packet are received during different reset intervals, when a reset interval is defined as the period between a reset that clears node topology information and the next reset; and

write means which links each received packet with the generated identification information, and writing the linked packet and identification information into a packet storage means.

2. The data transfer control device as defined in claim 1, wherein the identification information is a toggle bit that toggles from zero to one or from one to zero when one received packet and the next received packet are packets received within different reset intervals.

3. The data transfer control device as defined in claim 1, wherein the packet storage means is a randomly accessible storage means and is divided into a control information area in which is stored packet control information and a data area in which is stored packet data; and wherein the identification information is included within

the control information written to the control information area.

4. A data transfer control device for transferring data  
5 between a plurality of nodes connected to a bus, the data transfer control device comprising:

write means which writes a packet that have been received from each node into a packet storage means; and

first pointer storage means which stores first pointer  
10 information that specifies a boundary in the packet storage means between an area for a packet received before the occurrence of a reset that clears node topology information and an area for a packet received after the occurrence of the reset.

15 5. The data transfer control device as defined in claim 4, wherein a start address of the next packet after a packet that was received immediately before the occurrence of a reset is stored as the first pointer information in the first pointer storage means.

20 6. The data transfer control device as defined in claim 4, further comprising:

a second pointer storage means for storing second pointer information which specifies a boundary in the packet storage  
25 means between an area for processed packets and an area for unprocessed packets; and

a third pointer storage means for storing third pointer

information which specifies a boundary in the packet storage means between an area for received packets and an area storing no received packets.

- 5 7. The data transfer control device as defined in claim 4, further comprising:

processing means which specifies a packet received after the occurrence of the reset, based on the first pointer information stored in the first pointer storage means, and gives  
10 priority to processing the specified packet.

8. The data transfer control device as defined in claim 4, wherein the packet storage means is a randomly accessible storage means and is divided into a control information area  
15 in which is stored packet control information and a data area in which is stored packet data; and

wherein the first pointer storage means includes:

a fourth pointer storage means for storing fourth pointer information which specifies a boundary in the control  
20 information area between control information for a packet received before the occurrence of the reset that clears node topology information and control information for a packet received after the occurrence of the reset; and

a fifth pointer storage means for storing fifth pointer  
25 information which specifies a boundary in the data area between data of a packet received before the occurrence of the reset that clears node topology information and data of a packet

received after the occurrence of the reset.

5 9. The data transfer control device as defined in claim 8,  
wherein the data area has been divided into a first data  
area for storing first data for a first layer and a second data  
area for storing second data for a second layer; and

10 wherein the fifth pointer information is pointer  
information which specifies a boundary in the first data area  
between the first data for a packet received before the  
occurrence of the reset that clears node topology information  
and the first data for a packet received after the occurrence  
of the reset.

15 10. A data transfer control device for transferring data  
between a plurality of nodes connected to a bus, the data  
transfer control device comprising:

read means which reads a packet from a packet storage means  
when a transmission start command has been issued;

20 link means which provides services for transmitting read  
packet to each node; and

25 status storage means which stores status information  
indicating that the transmission of a packet has been halted,  
when the transmission of the packet has been halted by the  
occurrence of a reset that clears node topology information.

11. The data transfer control device as defined in claim 10,  
further comprising processing means which issues the

transmission start command;

wherein the processing means cancels transmission processing that has already started, without determining whether or not transmission has been completed, when it has been  
5 determined from the status information that transmission of a packet has been halted by the occurrence of the reset.

12. The data transfer control device as defined in claim 1,  
wherein the reset is a bus reset as defined by the IEEE  
10 1394 standard.

13. The data transfer control device as defined in claim 4,  
wherein the reset is a bus reset as defined by the IEEE  
15 1394 standard.

14. The data transfer control device as defined in claim 10,  
wherein the reset is a bus reset as defined by the IEEE  
1394 standard.

20 15. The data transfer control device as defined in claim 1,  
wherein data transfer is in accordance with the IEEE 1394 standard.

16. The data transfer control device as defined in claim 4,  
25 wherein data transfer is in accordance with the IEEE 1394 standard.

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17. The data transfer control device as defined in claim 10,  
wherein data transfer is in accordance with the IEEE 1394  
standard.

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A1  
5 18. Electronic equipment comprising:

a data transfer control device as defined in any of claims  
1 to 3, or 12, or 15;

a device which performs given processing on data that has  
been received from another node through the data transfer  
10 control device and a bus; and

a device which outputs or stores data that has been  
subjected to processing.

19. Electronic equipment comprising:

15 a data transfer control device as defined in any of claims  
4 to 9, or 13, or 16;

a device which performs given processing on data that has  
been received from another node through the data transfer  
control device and a bus; and

20 a device which outputs or stores data that has been  
subjected to processing.

20. Electronic equipment comprising:

25 a data transfer control device as defined in any of claims  
10, 11, 14, or 17;

a device which performs given processing on data that has  
been received from another node through the data transfer

control device and a bus; and

a device which outputs or stores data that has been subjected to processing.

5 21. Electronic equipment comprising:

a data transfer control device as defined in any of claims 1 to 3, or 12, or 15;

a device which performs given processing on data that is to be transferred to another node through the data transfer control device and a bus; and

a device which takes in data to be subjected to processing.

22. Electronic equipment comprising:

15 a data transfer control device as defined in any of claims 4 to 9, or 13, or 16;

a device which performs given processing on data that is to be transferred to another node through the data transfer control device and a bus; and

a device which takes in data to be subjected to processing.

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23. Electronic equipment comprising:

a data transfer control device as defined in any of claims 10, 11, 14, or 17;

25 a device which performs given processing on data that is to be transferred to another node through the data transfer control device and a bus; and

a device which takes in data to be subjected to processing.